

Testicular Torsion Treatment as a Male Reproductive Health Concern

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Rec date: Aug 23, 2016; Acc date: Sep 15, 2016; Pub date: Sep 19, 2016

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Short Communication

Testicular torsion is a true urological emergency and its annual incidence in men/boys younger than 25 years is 1 in 4000. This acute condition occurs most often (40% to 65%) in the neonatal period and around puberty [1].

Testicular salvage rates following appropriate diagnostic and surgical managements range from 42% to 88% [2]. The main pathophysiological mechanisms underlying bilateral testicular damages following torsion-detorsion have been shown to be related to ischemia-reperfusion [3-5].

Semen analyses as well as oxidative stress, histopathological and blood parameters evaluations after testicular torsion surgical treatments in experimental studies have shown marked abnormalities in both testes compared to normal standard values [3-8].

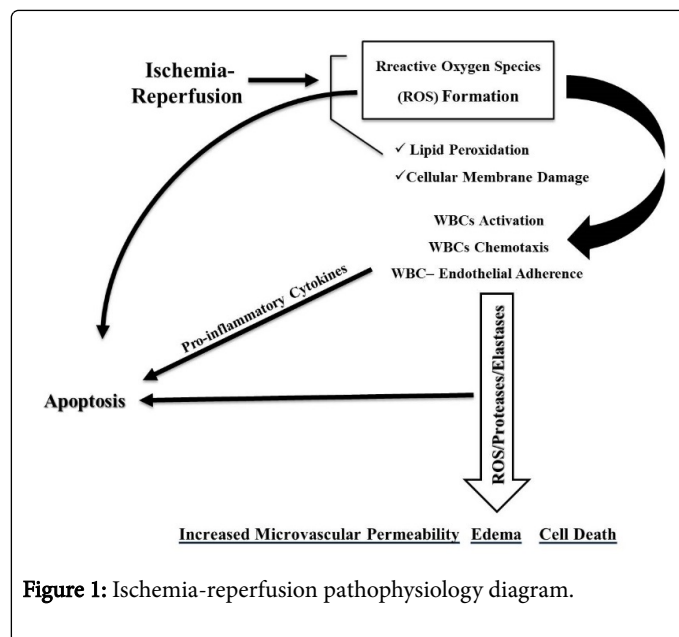


Figure 1: Ischemia-reperfusion pathophysiology diagram.

The degree of fertility loss following testicular torsion depends on the extent of the ischemia and the subsequent damage to the contralateral testis. Substantial body of growing evidence has suggested that testicular ischemia impairs the blood-testis barrier and exposes the contralateral testis to the potential risk of autoimmunization against its own spermatogenic cells [9].

Recently, attempts have been geared toward searching and evolution of novel therapeutic approaches such as adjunctive therapy to

counteract complications arising from ischemia-reperfusion as a clinically important goal.

Based on this concept, several pharmacological agents as well as surgical interventions have been examined to prevent or reverse ischemia-reperfusion induced fertility problems [5-12].

Based on critical roles of reactive oxygen species over-production and inflammatory responses (Figure 1) in the bilateral testicular malfunction following torsion invasive treatment, post-surgical administration of safe anti-oxidant and anti-inflammatory agents could be beneficial.

References

1. Uyeturk U, Terzi EH, Gucuk A, Kemahli E, Ozturk H, et al. (2013) Prevention of torsion-induced testicular injury by *Rhodiola rosea*. *Urology* 82: 254.e1-6.
2. Oktar T, Kucukdurmaz F, Erdem S, Kilicaslan I, Ceylan C, et al. (2013) Tunica albuginea decompression fails to alter the injury of prolonged arterial occlusion during testicular torsion. *J Urol* 190: 239-243.
3. Bilommi R, Nawas BA, Kusmayadi DD, Diposarosa R, Chairul A, et al. (2013) The effects of glutathione on malondialdehyde expression and seminiferous tubule damage in experimental testicular torsion-detorsion in Wistar rats. *J Pediatr Urol* 9: 1059-1063.
4. Wei SM, Yan ZZ, Zhou J (2013) Involvement of reactive oxygen species and TATA box-binding protein-related factor 2 in testicular torsion/detorsion-induced injury. *Urology* 81: 466.e9-14.
5. Yurtcu M, Abasiyanik A, Biçer S, Avunduk MC (2009) Efficacy of antioxidant treatment in the prevention of testicular atrophy in experimental testicular torsion. *J Pediatr Surg* 44: 1754-178.
6. Karagüzel E, Kutlu Ö, Yuluğ E, Mungan S, Kazaz İO, et al. (2012) Comparison of the protective effect of dipyridamole and acetylsalicylic acid on long-term histologic damage in a rat model of testicular ischemia-reperfusion injury. *J Pediatr Surg* 47: 1716-1723.
7. Yazawa H, Sasagawa I, Suzuki Y, Nakada T (2001) Glucocorticoid hormone can suppress apoptosis of rat testicular germ cells induced by testicular ischemia. *Fertil Steril* 75: 980-985.
8. Wei SM, Yan ZZ, Zhou J (2011) Protective effect of rutin on testicular ischemia-reperfusion injury. *J Pediatr Surg* 46: 1419-1424.
9. Mogilner JG, Lurie M, Coran AG, Nativ O, Shiloni E, et al. (2006) Effect of diclofenac on germ cell apoptosis following testicular ischemia-reperfusion injury in a rat. *Pediatr Surg Int* 22: 99-105.
10. Shahkarimi M, Shalizar Jalali A, Behfar M, Najafi G (2016) Doxycycline diminishes unilateral testicular ischemia-reperfusion-induced impairment of epididymal sperm fertilizing capability in mice. *J Reprod Infertil* 17: 63-64.
11. Aktöz T, Kanter M, Aktas C (2010) Protective effects of quercetin on testicular torsion/detorsion-induced ischaemia-reperfusion injury in rats. *Andrologia* 42: 376-383.
12. Moghimiyan M, Soltani M, Abtahi H, Adabi J, Jajarmy N (2016) Protective effect of tunica albuginea incision with tunica vaginalis flap coverage on

tissue damage and oxidative stress following testicular torsion: Role of duration of ischemia. J Pediatr Urol S1477-5131: 30134-30136.